



Facility Services

Annual Report

December 2022

CONTENTS

1	GENERAL/INTRODUCTION	3
2	FS DATA	3
3	OVERVIEW OF THE FACILITIES SERVICES DEPARTMENT RESPONSIBILITIES	6
4	FS ACCOMPLISHMENTS	11

1 GENERAL/INTRODUCTION

This report is intended to be both a review of the past year and a look ahead to the future.

Facility Services (FS) provides 24/7 support to NAU's physical campus in Flagstaff and statewide. FS maintains 177 owned facilities at 7,051,851 gross square feet on 829 acres. Additionally, FS maintains 11 miles of roads and 28 miles of pedestrian pathways. All activities are performed within a complex regulatory environment, which will affect activities and requirements in all areas of responsibility. Staff is available 24/7 to respond to emergencies and urgent situations.

Mission: To create, maintain and enhance our campus through continuous improvement and sustainable practices.

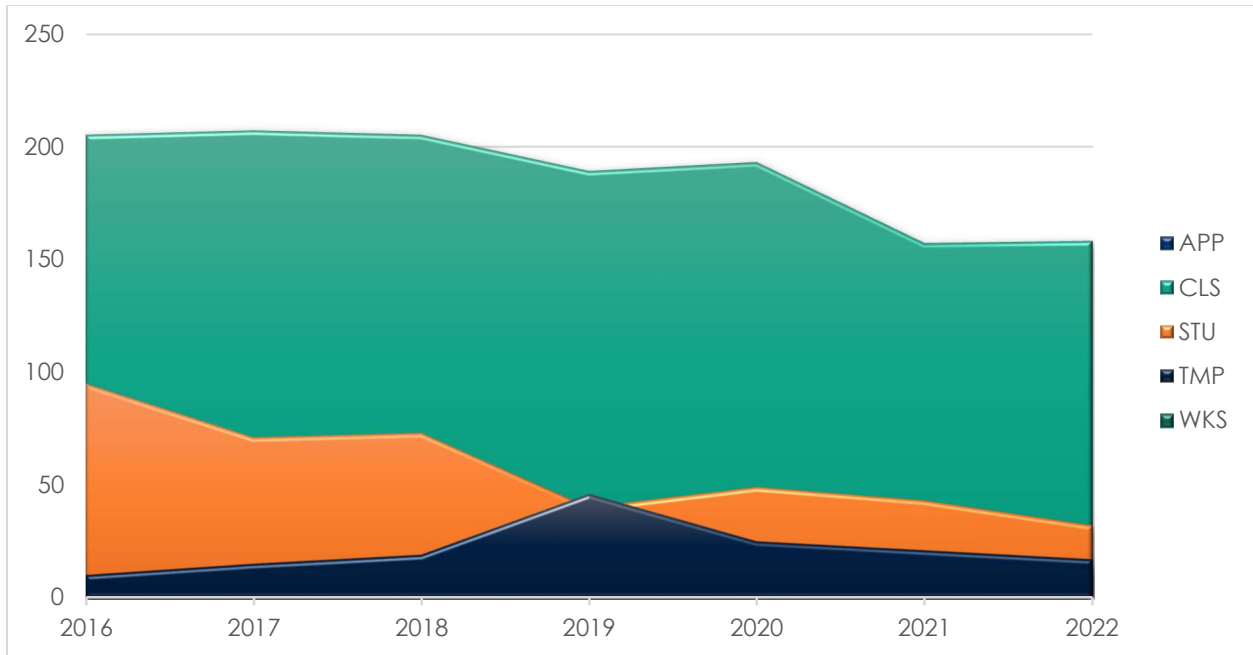
Vision: To be a progressive, customer-focused organization recognized as a leader in providing exceptional service and responsible stewardship of university resources.

2 FS DATA

2.1 HEADCOUNT – YOY

Headcount at pay period end at the start of each Fiscal Year. Shows a 100 person decline over the last 6 years.

HR Dept	(Multiple Items)					
Count of Empl ID						
Row Labels	APP	CLS	STU	TMP	WKS	Grand Total
2016	22	205	95	10		332
2017	18	207	71	15		311
2018	19	205	73	19		316
2019	18	189	40	46	11	304
2020	15	193	49	25		282
2021	14	157	43	21		235
2022	13	158	32	17		220



2.2 BUDGET – YOY

State maintenance budgets have shrunk over the years while the cost to do maintenance has continued to rise, as has the area of maintenance both for buildings and exterior spaces.

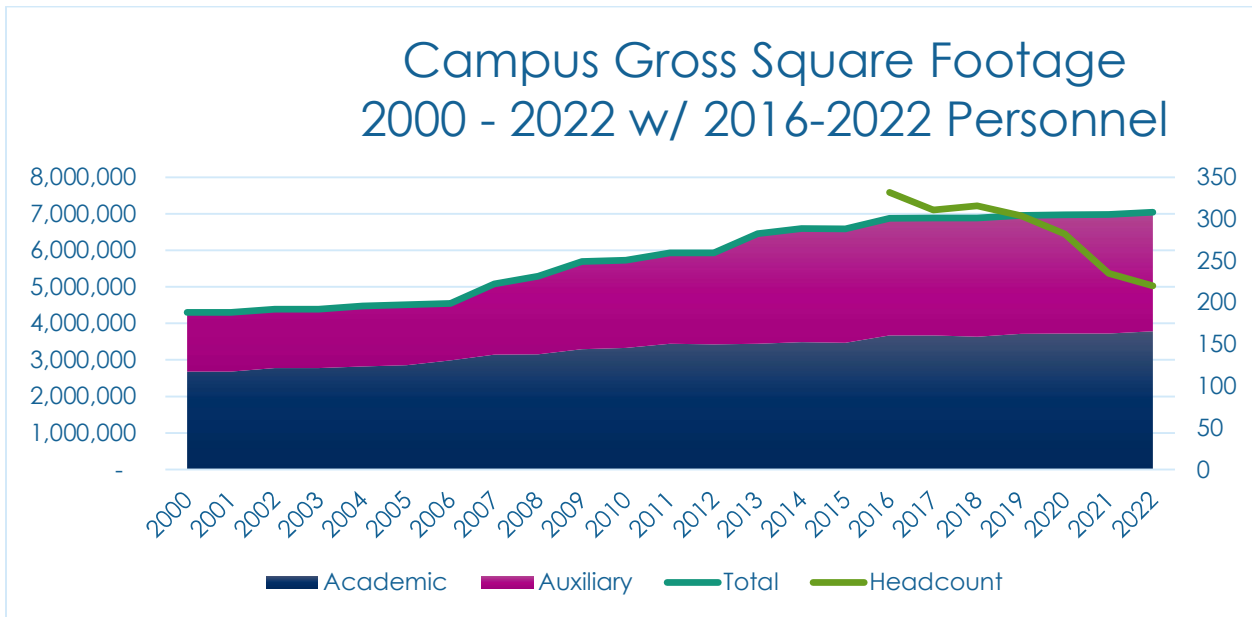
DEPTID	DEPTID Desc	Fund	FY23	FY22	FY21	FY20
4500020	Administration & Fiscal Ops	1500	\$29,247.14	\$28,395.14	\$27,568.00	\$27,659.00
4500045	Sustainability	1500	\$89,458.24	\$84,458.24	\$63,466.00	\$61,724.00
4500070	General Maintenance Mechanics	1500	\$531,000.00	\$456,000.00	\$456,000.00	\$452,700.00
4500080	Custodial Shop	1500	\$3,432,613.00	\$3,258,000.00	\$3,258,000.00	\$3,515,110.00
4500090	Heating, Ventilation & Cooling	1500	\$670,056.00	\$456,000.00	\$456,000.00	\$633,001.00
4500110	Landscaping	1500	\$641,970.00	\$705,000.00	\$705,000.00	\$541,976.00
4500140	Carpentry Shop	1500	\$143,911.00	\$127,905.00	\$127,905.00	\$172,240.00
4500150	Electrical Shop	1500	\$286,312.00	\$266,312.00	\$266,312.00	\$337,178.00
4500160	Access Services	1500	\$167,450.00	\$142,450.00	\$142,450.00	\$192,747.00
4500200	Moving & Other Facilities Supt*	1500	n/a	n/a	n/a	\$105,729.00
4500190	Paint Shop	1500	\$67,503.00	\$50,000.00	\$50,000.00	\$354,868.00
4500210	Plumbing Shop	1500	\$169,091.00	\$154,091.00	\$154,091.00	\$238,879.00

\$6,228,611.38	\$5,728,611.38	\$5,706,792.00	\$6,633,811.00
----------------	----------------	----------------	----------------

*Moving Crew was reorganized after FY20 and moved to GMM and LOS

2.3 GSF – YoY

Year	Academic	Auxiliary	Total
2016	3,667,863	3,213,605	6,881,468
2017	3,671,039	3,213,605	6,884,644
2018	3,634,212	3,250,558	6,884,770
2019	3,710,879	3,250,372	6,961,251
2020	3,720,074	3,250,372	6,970,446
2021	3,720,856	3,265,377	6,986,233
2022	3,786,474	3,265,377	7,051,851



2.4 WO – YoY

Work Orders FY22

Row Labels	Count of WO #	Sum of WO Task Posted Hours
After Hours Calls	1,467	1,854
Corrective	11,688	20,216
Move/Modify	39	98
PM Repair	3,373	16,304
Preventive Maintenance	7,366	205,873
Service Request	5,334	25,155
Grand Total	29,267	269,500

Work Orders FY23 YTD (July 1, 2022 – December 8, 2022)

Row Labels	Count of WO #	Sum of WO Task Posted Hours
After Hours Calls	806	1,029
Corrective	6,089	9,724
Move/Modify	17	39
PM Repair	1,073	4,333
Preventive Maintenance	2,114	89,124
Service Request	2,234	7,154
Grand Total	12,333	111,402

2.5 UTILITY CONSUMPTION

Graph and data for utility use the last 5 years with all commodities converted to kBtu.

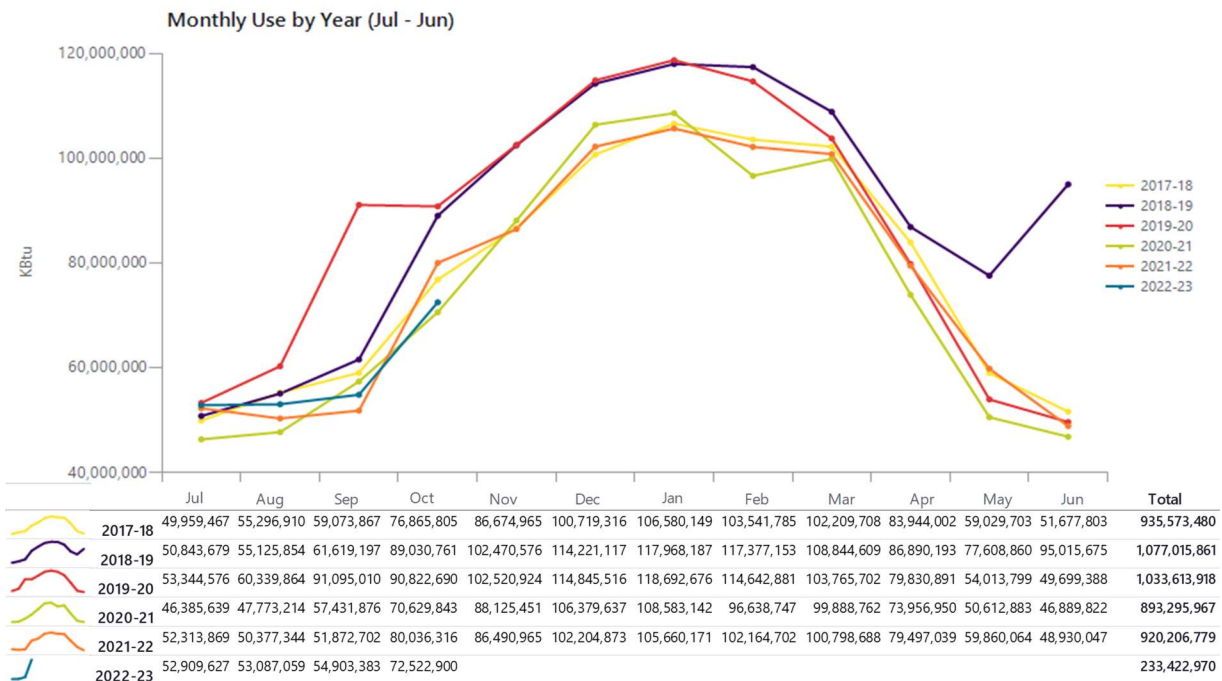


Northern Arizona University

Report-01 - Monthly Trends - Comparing Year-to-Year

Monthly Use by Year (Jul - Jun)

Executive Summary (kBtu)



3 OVERVIEW OF THE FACILITIES SERVICES DEPARTMENT RESPONSIBILITIES

3.1 UTILITY SERVICES

- Purchasing, producing, and distributing water and energy on campus
- 24/7 operation and production of Steam, Chilled Water, and Hot Water for the campus

- Manages and maintains the distribution systems for Steam, Chilled Water, HTHW, Electric, Natural Gas, Domestic Water, Reclaimed Water, Sewer, and Stormwater
- Negotiates, contracts, and approves vendor bills for offsite production and distribution of utilities
- Maintain and read utility meters
- Creates and issues utility bills for customers and develops PeopleSoft interface files
- Manages regulatory compliance for the natural gas system
- Develops utility rate structure and management of budgets
- Actively researches renewable energy opportunities and energy efficiency projects for the campus
- Construction document review and inspections for campus projects
- Programming and administration of building management system (BMS) and service contracts
- Ongoing energy management, retro-commissioning, and oversight of the commissioning process for campus projects
- Locate and document underground utilities and coordinate as-built locations with the GIS team
- Coordination with research, academics, and other groups on campus for research and academic opportunities
- 24/7 Emergency response
- Support of Facility Services and the University as requested/deemed necessary

3.2 PLANNING, DESIGN & CONSTRUCTION (PDC)

- The Planning, Design, and Construction (PDC) team guide the development of capital projects on the NAU mountain and statewide campuses, including yearly project development, vendor partner selections, project bids, RFQs and RFPs, blueprints, renderings, the management project team of design professionals and contractors, and opening of buildings for occupation
- Provides project management for projects as small as a few hundred dollars to multi-million-dollar complex projects
- Provides in-house interior design and landscape architecture services
- Edits and maintains campus design guidelines and technical standards
- Capital plan development and implementation

3.3 CUSTODIAL

- Responsible for the overall cleanliness and appearance of campus interiors
- Cleans and maintains floors vacuuming, mopping, and buffing, carpet cleaning, stripping, and waxing
- Trash – Empties interior trash containers.
- Restrooms – Cleans, disinfects, and maintains supplies of soap, paper products
- Furniture / Walls - Dust, spot clean walls, furniture, window blinds
- Windows – Washes interior windows
- Entrances – Assists in keeping entrances free of litter, ice, and snow.

- Assist in snow removal and ice control at building entrances and walkways
- Building security – Locks and unlocks the exterior of buildings, Monday through Friday
- Classrooms and common areas - Clean and disinfect
- Emergency support, biohazard cleanup, emergency, and flood response cleanup
- Special event prep cleaning and clean up

3.4 LANDSCAPE AND OUTDOOR SERVICES (LOS)

- Responsible for maintaining the campus exterior environment, including grass, trees, shrubs, foliage, natural wooded areas, athletic fields, recreation fields, and other landscaped areas
- Fields - mow, fertilize, aerate, spray, seed, top dress
- Pest removal and management
- Maintain and empty exterior recycling and trash bins, including Big Bellies
- Compost program management
- Provides heavy equipment snow removal and management of snow removal efforts program (equipment, ice melt, scheduling)
- Irrigation-Maintenance of the system, monitoring CALSENS systems for proper coverage, function, and water conservation
- Weed control – hand removal, cutting, and management of certification for chemical spray application of products to campus hardscapes (concrete, asphalt, rock/DG), lawns
- Regular maintenance and monitoring of the health of campus trees
- Street and Parking Lot sweeping and trash control
- Assists with the set-up of special outdoor events –tents, portable restrooms, fences, barriers
- Maintains the portable restroom trailer unit
- Signs - Regulatory, parking, event order installation, construction signs
- Outdoor furniture management - bike racks, benches, tables, and planters
- Winter care - raking, pruning, lawn sweeping, dead-heading bedding plants, cleaning up of debris, power washing, cleaning up native areas, rehab/refreshing landscape, removal of dead and dying plants, shrubs, and trees
- General cleanup of debris and trash, and litter

3.5 OFFICE OF SUSTAINABILITY

- The Office of Sustainability engages NAU students, employees, and community members around sustainable initiatives to meet the university sustainability vision and mission and implement the goals of the Climate Action Plan (CAP)
- The Climate Action Plan guides the direction of NAU's environmental programs for stewardship, recycling, waste minimization, transportation, operations, procurement, water, energy use, and energy efficiency projects and collaboration with academic departments and research

- The Office of Sustainability is responsible for collecting and curating sustainability-related data that is reported through the ASSHE STARS reporting system. This report informs the Preston Review which publishes sustainability rankings for higher education institutions.
- The Office of Sustainability provides business management and supervision for the NAU Green Fund. The Green Fund oversees the allocation of up to \$600k per academic year and supports a variety of sustainability projects, initiatives, and research.

3.6 FACILITIES & MAINTENANCE

3.6.1 Operations and Maintenance

- Operations and Maintenance is responsible for the maintenance and continued safe operation of campus facilities and for prolonging the useful life of facilities and building systems
- Tasked with operating and maintaining campus buildings, HVAC systems, electrical, building access, plumbing, general maintenance, carpentry, and paint
- Daily attention to campus needs and ongoing maintenance programs, and a wide variety of services to provide a functional, safe environment throughout all campus facilities
- Team of multi-talented, multi-skilled trades personnel experienced in all areas of building systems, interior, and exterior

3.6.2 Carpentry Services

- Responsible for repairing and maintaining, and inspecting all roofing systems, heat tapes, gutters, and downspouts and repair of roof leaks
- Repairs furniture, doors, desks, seats, cabinets, and countertops
- Masonry repair: ceramic tile, curbs, stucco, block, and brick. Roofing repair, wall repair, tile repair, door installation and maintenance, and new construction for buildings
- Small projects and renovation and remodeling, including the construction of walls, installation, and finishing of doors, windows, cabinets, and partitions, AV installations, whiteboards
- Installation - chalkboards, corkboards, keyboard trays, whiteboards, pictures, and plaques
- New masonry projects involving ceramic tile, block, brick, stucco, and veneer.
- Repairs to doors and windows, including frames, glass, and hardware

3.6.3 Electrical Services

- Responsible for campus electrical systems line and high voltage
- Maintains transformers, fuse boxes, motors, generators, emergency phone lights, campus exterior lights, streetlights, high voltage supply system, and switch gear
- Install and repair new outlets, circuits, lights, motors, and other electrical components

- Review your equipment load requirements to determine if a circuit is being overburdened with electrical demands or can support a new piece of equipment
- Review and inspect all construction projects for compliance with code and technical standards

3.6.4 General Maintenance Mechanics (GMM)

- Perform minor plumbing repairs of leaks and stoppages in equipment such as faucets, shower valves, drains, sinks, toilets, urinals, flush valves, floor drains, and drinking fountains
- Repair and install toilet seats, dispensers, toilet paper, hand towel dispensers, and towel bars
- Perform minor electrical repairs of receptacles, outlets, switches, ballasts, fuses, circuit breakers, exit lighting devices, etc.
- Perform minor repairs on doors, closets, windows, floor tiles, cabinets, and stair treads.
- Repair, replace and install ceiling tiles, window shades, and blinds
- Repair carpet tears and other minor carpet repairs
- GMMs install new equipment, including pencil sharpeners, bulletin boards, whiteboards, soap dispensers, blinds, etc.
- Provide moving services for furniture, lab equipment, rentals, and forklift services
- Document shredding and Universal Waste collection and disposal
- Locking of buildings

3.6.5 HVAC and TD Industries (vendor partner)

- Maintains, repairs, and inspects the mechanical equipment in every building, including filters, and belts, inspects and cleans coils and lubricating motors and pumps
- Maintains V-belts on air handling systems exhaust systems in addition to bearings and any moving part on equipment that has to do with moving air and pumping of heated or chilled water throughout your building.
- Maintains extensive Planned Maintenance programs for lab buildings, including air compressors, vacuum pumps, air filtering systems, and lab valves
- Oversees maintaining and troubleshooting building control systems such as DDC, Pneumatic, and relay logic systems that control the environment in all buildings and lab pressurization in our lab buildings.
- Maintains and repairs AC, steam, and high temp hot water within buildings
- Responds to too hot/too cold room/building temperatures as routine

3.6.6 Building Access Services (BAS)

- Building Access Services is responsible for the repair and maintenance of campus locks, automatic door openers, card readers, cabinet locks, and the production of keys for all locks
- Keys, changing locks or re-keying lock systems for security reasons (i.e., lost or stolen keys), and special equipment locking devices

- Maintains ADA (Americans with Disabilities Act) access operators as routine maintenance
- Provides safe and vault service, including rekeying safes
- Installs computer and office equipment security devices
- Provides security consulting for all campus departments
- Manages contractor and vendor key checkout process

3.6.7 Paint

- Maintaining the interior and exterior painted surfaces trim, walls, handrails, curbs, crosswalks
- Patching and repaints damage to walls and ceilings
- Graffiti and vandalism correction
- Signage maintenance – including wayfinding and monument signs
- Creation of signage – room numbers, nameplates, interior wayfinding, event sign placement and management across campus

3.6.8 Plumbing and Gas

- Responsible for the general maintenance and repair of water supply infrastructure and sewage underground systems.
- Responsible for plumbing fixtures and exterior hose bibs
- Responsible for the natural gas distribution system and equipment within buildings
- Perform maintenance and repairs on gas furnaces, boilers, in-wall heaters, water heaters, stoves, and other gas appliances.

3.7 HAT RANCH

- With assistance from a generous philanthropic gift to the NAU Foundation, Northern Arizona University acquired the historic Hat Ranch near Williams in April 2021.
- Located 70 miles south of the Grand Canyon
- The Hat Ranch was established in the early 1800s and includes roughly 300 scenic acres and a variety of well-preserved period buildings.
- It is partially surrounded by more than 1,500 acres in conservation easement held by the Grand Canyon Trust.
- It is currently used only as a conference/event facility
- There is 1 full-time employee for Hat Ranch, on-site caretaker that lives at Hat Ranch

4 FS ACCOMPLISHMENTS

4.1.1 Department-wide

- Came out of COVID shutdowns and budget constraints without having to lay off staff

- Continued to adjust and improve the budget model for Custodial and LOS on a cost/sf model based on the service level agreement.
- Managed Hat Ranch through the first spring and summer seasons, replaced and repaired failing systems
- Consolidated shop spaces within Facilities to prepare for the VP of CAPCOT and Transit Office move to Facilities Services building 77
- TMA customer service survey
- Continued enhancement and use of Mobile TMA for all trade shops and data collection in collaboration with work control, implemented customer service survey
- Brought on TDI as a partner to better manage and serve HVAC needs on campus and fill staffing and skill gaps
- Transitioned the Fire Marshal and Fire Life Safety team to Environmental Health and Safety
- Hired three new critical leadership positions, Associate Directors for LOS / Custodial and AD for Operation and Maintenance over all trades and manager of the utility plants
- Improved salaries across the FS department to better align with the market and address local living costs
- Successful FTE Hire and Special Assignments
 - Contract Administrator in PDC, 3 new project managers, interior designer
 - Manager of Sustainability
 - Electrical Shop manager and new electricians
 - New Skilled Carpenter, roofer and mason
 - Installed new GMM Manager
 - Utility Department: Commissioning and controls coordinator, plant manager, stationary engineers
 - Director of FS – Stephanie Bauer – currently Interim AVP for FS
- Made substantial progress on the mechanical room cleanup and safety program
- Began phase one of campus comprehensive Lenel implementation
- Implemented the Gridline Fleet Telematics for all Facility Service vehicles, providing data on usage of the vehicles
- Establishment of regular quarterly meetings with the office of AVP and every shop
- Completed Library Master Plan
- Began the Sustainable Smart Campus Master Planning process with the DLR Group
- Completed first phase creation of the Climate Action Plan (CAP)
- Campus summer blitz with the help of a new partner Olympus
- Strong budget management projected to finish the FY22 in the black for the fourth year in a row
- Completed over a third of the campus Facility Condition Assessments. (FCA)

4.1.2 Utilities

- Repair of failed utilizes at 1400 gallons of lost water per day, repaired prior to heating season at Nursing,

- Repaired several failed steam valves and systems prior to student arrival for Fall Semester The Commissioning and Controls Coordinator has continued to find opportunities to improve efficiencies
- McKinstry completed an FCA on the plants
- TDI has completed an energy and operations assessment on both plants
- Completed \$2M plant safety upgrades
- Worked with GIS to develop better utility as-built requirements and reviewed/verified/adjusted mapping to be more accurate.
- Arizona Corporation Commission accepted our Natural Gas Operations and Maintenance Manual with Operator Qualification Plan and is utilizing it for recommendations for other entities
- Repair all Natural Gas Regulators on Campus, purchased replacements for regulators past rated age to be replaced in FY22, and developed standards for Excess Flow Valves to be installed at regulators to prevent explosions like the University of Nevada - Reno had in 2019.
- Upgraded the utility services billing program, which forced a process review. Processing time seems to be reduced, training of new student employees who perform most of the work went quickly and smoothly, customers now have more detail on their bills, and there are invoice numbers that can help trace payments to invoices if put on the checks.
- In the process of reviewing the central plant efficiencies with the Plant Manager and Stationary Engineers to be utilized in operational decisions.
- The Alerton system was connected to the Azure IOT platform and developed detailed specifications for an energy dashboard to be implemented by the IOT team.
- Worked with ITS to perform a security review of the BMS system and developed recommendations.
- Repair of failed utilizes at 1400 gallons of lost water per day, repaired before the heating season at Nursing,
- Repaired several failed steam valves and systems prior to student arrival for Fall Semester

4.1.3 PDC

- Delivered several construction projects, including the new Student-Athlete High-Performance Center, and completed the Science Annex renovation and the Sky Dome lighting retrofit project
- Completed new bus stops and drop-off areas at Sky Dome, significantly improving traffic in this area, especially during commencement and big games.
- Replaced a large portion of the utility tunnel lid adjacent to the Union
- Completed \$2M Utility Plant Safety upgrades
- Converted several buildings' HVAC systems controls from pneumatic to digital
- FLS Projects Completions: Biology, Physical Science, Health Professions, Sechrist
- Skydome LED lighting /Sustainable Renewal Fund – 5 year process
- FCA Analysis on All Campus Living Communities and building 10 Year strategy
- Worked through three layers of material failures at Mckay Village and still meet the required dates and costs.
- Modernization of campus living spaces throughout campus. McConnell hall, PFA Resource Room

- Overcome several position changes through the year and have grown and adapted to meet the needs of campus
- Continuous improvement and maintenance of campus roads and Parking
- Repair of continuous flooding issues at Liberal Arts. This system is fully repaired.
- Campus Master Planning was initiated. This has been something trying to get kicked off for many years.
- Contracts has documented over \$100,000 of savings over the fiscal year
- Explore New Technologies NuFlow has been successful in replacing existing failed piping systems. We may be able to use for all sewer and internal piping repairs.
- Capital Improvement Plan

4.1.4 Sustainability

- Hired Dayna Cook as a Sustainability Data Analyst.
- Was approved to implement a new campus-wide recycling program and initiated a purchasing process for new bins.
- Installed waste sensors in all NAU waste and recycling dumpsters.
- Secured significant funding from the Green Fund to aid with the Recycling revamp.
- Coordinated the work of the presidential-mandated Sustainability and Climate Action Plan Task Force. Provided a deliverable that will be the new NAU Climate Action Plan.
- Applied and was awarded pro bono for a renewable energy assessment for NAU by COHO through Second Nature.
- Successfully held in-person sustainability awards.
- Provided two summer internships for NAU students.
- Successfully managed students throughout the year.
- Continued work on the NAU Climate Action Plan: The NAU 2021 CAP will be the road map for the university to complete the needed steps to achieve the President's Climate Leadership Commitment, which includes resilience planning and steps toward carbon reductions, as defined by Second Nature's Climate Leadership Network. The NAU 2021 CAP development process engaged representatives of the City of Flagstaff and individuals representing community groups, non-profit organizations, other levels of government, and businesses in the Flagstaff community. It makes explicit the relationships between the city and university campus in reaching their goals for carbon neutrality and community resilience. We are nearing the completion of this plan.
- Geothermal Test Drilling: Geothermal heat pump drilling test funding was secured and was carried out. In a collaboration between the Green Fund and Capital Planning and Campus Operations, we now have the test drilling results to further explore the efficiency and feasibility of geothermal heat pumps as a potential climate mitigation strategy for the NAU Flagstaff Mountain Campus.
- Sustainable Campus Ecosystem Initiative: Over the past year we have developed the Sustainable Campus Ecosystem Initiative (SCEI), which aims to use the NAU campus as a research and learning laboratory to analyze

operational challenges in the greater campus environment and implement innovative solutions to mitigate the effects of climate change.

- Participated in the Sustainable Campus Master Planning process.

4.1.5 Facilities & Maintenance

- Hired a new AD of Operations and Maintenance
- Piloted TORUS electronic key boxes
- Partnered with TDI to provide HVAC services to the campus
- Have begun developing a preventative maintenance program with the leadership of the new AD
- Multiple residential building lock replacements
- Completed build-out of Interior Design program remodel at PFA
- Completed cadaver lab remodel at Health Professions
- Maintained campus operations following significant budget reductions and position holds
- Continue to provide services to triage maintenance (general, snow removal, etcetera) requests to make best use of reduced operating budgets while maintaining staffed positions, limit attrition
- Continue to tag assets throughout campus and inventory them in TMA
- Streamlined aging Work Order management & review
- Working with EH&S to improve safety training and awareness

4.1.6 Operations - LOS

- Hired a new AD to oversee both LOS and Custodial
- Fine-tuned our zone assignments to be more efficient (each day of the week assignment)
- Purchased two new trucks
- Continuing to work on our landscape material sales program to supplement our budget
- Fine-tuning our maintenance and service to our customers to align with service level agreements
- Improving campus entrances and helping plan all landscape projects
- Employee training on equipment and snow routes to cover any sidewalks, ADA, roads or parking lot snow removal areas to their completion
- Increased department safety training and awareness
- Apply safety procedures to keep our employees safe we have had minimal COVID cases considering we have been here through the entire Pandemic.
- Continue to train other employees on the snow removal process.

4.1.7 Operations – Custodial

- Hired a new AD to oversee both LOS and Custodial
- Implemented key boxes at zone locations so custodians no longer need to arrive and depart from Facility Services, giving the crews more time in the buildings they clean.
- Training and access for custodial staff to enter their own time in TMA
- Provided work vests for all employees for higher visibility and to enable always carrying PPE

- Piloted a robotic vacuum in Cline Library
- Automated robotic scrubber purchased for the SAHPC
- Modifying Blitz efforts in a pandemic
- Reduction of funds used for blitz by incorporating Academic teams to assist with the blitz efforts.
- Transition for custodians entering time in TMA
- Business cards for all assistant manager level and higher
- Established new protocols and processes for on-call over summer to limit NAU's expenses
- All zone leads/assistant managers took on a rotating on-call schedule to spread the on-call work across the department.
- Implemented building manager survey
- Continue implementation of the Lotus water system campus-wide
- Continue to use Compuclean software for inspections

4.1.8 Hat Ranch

- Over 20 retreats/meetings were held at the ranch in 2022
- Two Elevating Excellence proposals were approved: Establishing the NAU Interdisciplinary Undergraduate Field Experience and Designing the NAU Hat Ranch Field Station
- WiFi being installed to service 30 concurrent users throughout the ranch
- Robotic/Drone research program taking place
- Heroes for Hives Beekeeping Program housed two bee apiaries on the ranch over the summer